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South Dakota Conservation Digest

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South Dakota Conservation Digest

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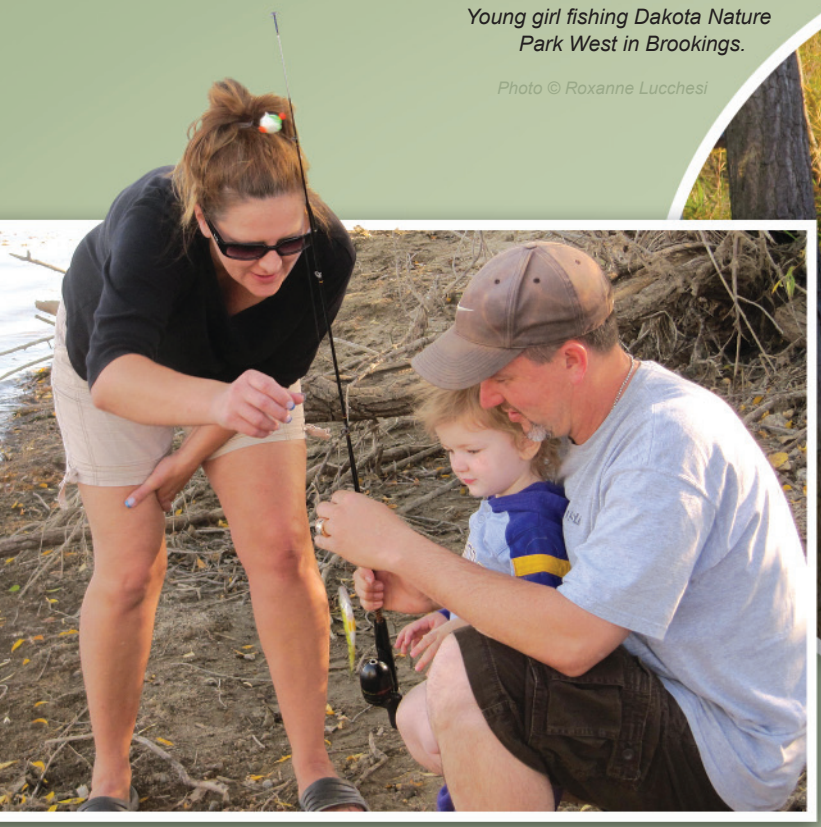
Young girl fishing Dakota Nature Park West in Brookings.

Photo © Roxanne Lucchesi



Family fishing at Interstate Lake near Brookings.

Photo © Dave Lucchesi

South Dakota is considered a rural state, however, its population is becoming increasingly urban. Today, nearly 43 percent of South Dakotans reside in the eight largest cities with 27 percent in the Sioux Falls metropolitan area alone.

Most of the state's fishing opportunities are located in rural areas. As more people move to urban areas where they have numerous recreational activity options, they become less likely to travel to rural waters to go fishing.

One strategy used by the South Dakota Game, Fish and Parks (GFP) to increase fishing participation by urban residents has been to provide fishing opportunities closer to their homes. The department currently manages 31 urban and community-based waters totaling 341 acres east river and 12 lakes totaling 184 acres west river.

To evaluate the success of this urban fishery strategy, a three year creel survey was conducted at Family Park Pond in Sioux Falls and at five small bodies of water near Brookings. In a creel survey, a staff member counts and interviews anglers to determine the number of people fishing and what they are catching. Information about anglers as well as their needs and wants is also collected. This survey also provided

Fishing Access Close to Home

information on the utilization of stocked fish, angler trip satisfaction, angler age distribution and what factors influenced angler satisfaction.

Fishing pressure or the total hours people spend fishing a water was very high on all the surveyed waters. Anglers spent nearly 80,000 hours fishing Family Park Pond and 34,000 hours on the Brookings ponds over the three year survey period. Every acre of water at Family Park Pond received almost 1,000 hours of fishing pressure each year. In comparison, an acre of water at Lake Madison or Lake Poinsett only receives about 8-10 hours of fishing pressure annually. Thus, the fishing pressure at the 28 acre Family Park Pond is similar to the fishing pressure on popular 1,000 acre lakes.

By Dave Lucchesi and Todd St. Sauver

As expected, over 64 percent of the fishing on all these ponds occurred during the summer months. However, due to annual fall perch stocking, fall and winter fishing pressure was higher at Family Park Pond than the Brookings ponds. Ponds stocked with rainbow trout often supported the highest numbers of people fishing.

Handicapped-accessible fishing piers were popular with anglers at Family Park Pond. About half of the open-water angling was done from the four fishing piers with most of that occurring on the pier closest to the main parking lot. The boat dock was also popular with anglers. In addition, more people fished on the 14 large flat rocks or fishing hard points scattered around the lake than on the remaining undeveloped shoreline. These findings illustrate the importance of providing easily-accessible and comfortable places for urban anglers to fish.

On average, open-water anglers caught about one fish each hour at Family Park Pond and about one and a half fish each hour at the Brookings ponds. The average number of fish caught each hour is similar to urban fisheries in other parts of the country and coincides with high overall angler satisfaction. Anglers only caught about half as many fish per hour during the winter which is common. The number of fish kept was much lower than the number caught which indicates many anglers were practicing catch and release.

Urban fishing offers great opportunities to take youth fishing.

Rainbow trout were always the most targeted species in trout-stocked ponds. Anglers fishing the tiny one-acre Indian Hills Pond in Brookings had the best fishing for trout with catch rates of one to two fish per hour and they kept close to 90 percent of the trout they caught. The Trout Extravaganza kids fishing event accounted for 45 percent of the total fishing pressure and 43 percent of the trout kept. The Indian Hills Pond also had the highest angler satisfaction of any water surveyed. Trout fishing was more challenging at Family Park Pond and Dakota Nature Park East Pond in Brookings. Only about a quarter of the fish stocked in these ponds were kept by anglers.

Although northern pike are not very popular with anglers who fish larger South Dakota lakes, they were popular with urban anglers at Interstate Lake and Gustafson's Pond in Brookings. Pike fishing on these waters was best in April and May and usually peaked about one to two weeks after the fish were stocked. Anglers kept 94 percent of the stocked pike in Interstate Lake and over half the stocked pike in Gustafson's Pond. They also released many pike and some were caught multiple times before being kept. Few parties kept more than one pike per angler which implies that reducing the daily limit would do little to maintain the good fishing for a longer period of time at urban lakes and ponds.

White bass were another popular species with urban anglers. Anglers were more likely to take a white bass home than a pike or trout and they kept nearly half of the fish they caught. At Family Park Pond, it was estimated that anglers caught more white bass than were stocked, indicating some fish were caught more than once. The success of stocking white bass varied by lake with stockings into Family Park Pond and Gustafson's Pond producing good fishing while the stocking at Interstate Lake produced poor results.

Panfish can be easy to catch and have been popular with both young and old anglers. Bluegill and black crappie stockings improved the fishing at Dakota Nature Park West, while fall yellow perch stocking at Family Park Pond produced good fishing in October and November, normally months of little fishing pressure.

Urban lakes were very popular with young anglers. Nearly a third of all anglers interviewed were less than 18 years old and 60 percent were

Fishing off the dock at Family Park Lake, Sioux Falls.
Photo © Dave Lucchesi

under the age of 35. The age distribution of anglers fishing the Brookings ponds and Family Park Pond was younger than the statewide distribution (Figure 2). South Dakota State University students elevated the contribution of 18-24 year old anglers (36 percent) at the Brookings lakes compared to Family Park Pond (15 percent). The percentage of kids fishing Family Park Pond during the summer school break did not increase and speculated that the absence of a bike path or walking trail connecting the park to residential areas may be limiting youth participation because they have to rely upon parents or a guardian for transportation.

It was found that factors like fishing for trout, fishing with kids, fishing open water, familiarity with a lake and the number of fish kept per hour of fishing had a positive influence on angler satisfaction.

- Angling parties targeting trout had the highest satisfaction.
- Adults fishing with kids were 35 percent more likely to be satisfied than those with adults only.
- Family Park Pond anglers who responded they were "very satisfied" with their fishing trip caught and kept more than two times as many fish per hour, on average, as parties who responded they were "dissatisfied."
- The strong relationship between the number of fish kept and angler satisfaction is common in urban fisheries in other states.

The creel surveys at Family Park Pond and the Brookings lakes highlight the importance of urban fisheries in providing fishing opportunity and as a potential tool for getting young anglers to take up the sport. Providing quality fishing, stocking trout and supporting events that teach youth fishing skills and introduce novice anglers to urban lakes will increase the odds of producing a satisfied angler and promote continued participation in the sport of fishing.

Photo © Todd St. Sauver

A nice northern pike caught at Family Park Pond, Sioux Falls.

LEAD EXPOSURE & WILD GAME BIRDS

Lead is a naturally occurring element used for hundreds of commercial and industrial purposes. The soft and dense nature of lead has made the element the most popular metal for ammunition production. Unfortunately, lead is toxic to all vertebrates and can cause health problems, including death when ingested. Ingestion of spent lead ammunition is the primary source of lead exposure to wild birds.

The effect of lead poisoning on waterfowl has been well documented, but the threat occurs with all species that may encounter spent lead shot. Lead poisoning from ingestion of spent lead ammnition has been documented in eagles, hawks, pheasants, grouse and doves as well as many other birds.

Photo © Keith Anderson

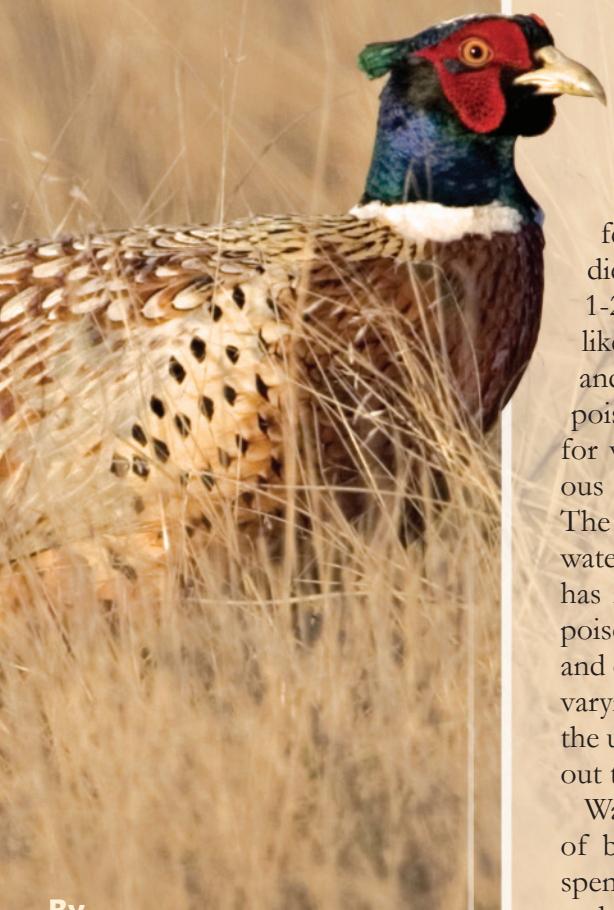


Photo © Dean Pearson | deanpearson.net

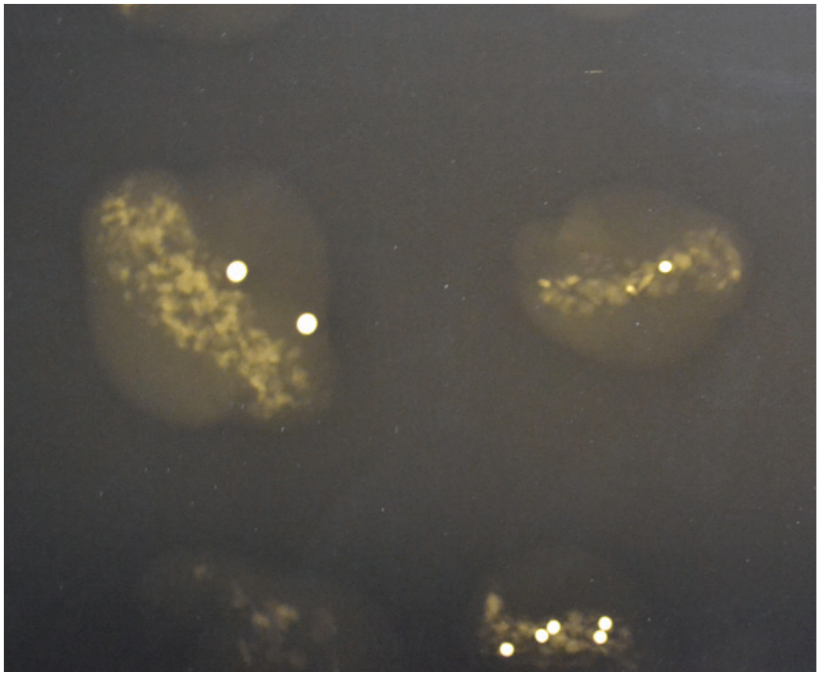
By
Travis Runia,
SD GFP Senior Upland Game Biologist and
Alex Solem,
SD GFP Upland Game Resource Biologist

Prior to the 1991 federal ban on lead ammunition for waterfowl hunting, an estimated 1.6 – 2.4 million waterfowl died annually from lead poisoning after ingestion of spent lead pellets. Most waterfowl gunning occurs in concentrated areas which results in a high chance that waterfowl will encounter spent pellets. Waterfowl are very susceptible to the acute effects of lead poisoning and most die within weeks of ingesting only 1-2 pellets. Considering the high likelihood of encountering pellets and the severe susceptibility of lead poisoning, the use of lead pellets for waterfowl hunting posed a serious threat to waterfowl populations. The ban on lead ammunition for waterfowl hunting has alleviated, but has not eliminated this threat. Lead poisoning still occurs in waterfowl and other birds; which has prompted varying types of state-level bans on the use of lead ammunition throughout the nation.

Waterfowl are not the only group of birds known to ingest lead from spent ammunition. Eagles, hawks, and other scavengers such as condors and vultures encounter lead while eating hunter shot animals or portions of animals such as gut piles laced with lead. This secondary exposure has caused mortalities in at least 30 bird species. Ingestion of spent ammunition has been recorded in over 100 species of birds. Whether or not lead poisoning poses a serious threat to a species' population depends on the combination of the exposure rate and susceptibility to lead poisoning.

Lead poisoning has long been known to be a serious problem for waterfowl, but what about upland game birds such as pheasants, grouse and doves? Are these commonly hunted birds at risk of lead poisoning from ingestion of spent lead pellets too? Unfortunately, less is known about the encounter rates and susceptibility of most upland game birds to lead poisoning. There have been limited reports of pheasant deaths caused by lead poisoning from ingestion of spent lead pellets. Mourning doves respond similarly to waterfowl after ingesting lead pellets and most die within weeks of ingesting as few as one pellet. A few studies have found 1-6 percent of hunter-harvested doves, pheasant and quail had ingested lead pellet(s) in their gizzard at the time of harvest. It is unknown how many birds ingested pellets and died, thus making them unavailable for harvest. While this gives insight into whether or not upland game birds encounter and ingest lead pellets, it is unknown if the ingestion of a lead pellet causes reduced survival or reproductive potential.

Given the overall lack of data related to lead poisoning and upland



Over 1,300 gizzards from wild roosters harvested in areas throughout South Dakota were X-rayed to find lead pellets.

game birds, the South Dakota Game, Fish and Parks (GFP) launched a three year research project in 2011 which focused on pheasants, the state's most abundant and high profile upland game bird. The study was multi-faceted in that it investigated lead shot availability in the soil, the prevalence of ingested lead pellets in the gizzards of hunter-harvested roosters and included an experimental pen trial to evaluate the individual effects of ingesting lead pellet(s).

Soil samples from properties with high shooting intensity were washed with water through a sieve to isolate spent lead pellets.

To investigate lead shot availability and ingestion by pheasants, separate 160 – 800 acre study sites were selected during 2011, 2012 and 2013 in Lyman County. The sites in 2012 and 2013 were licensed shooting preserves with high shooting intensities. The 2011 site had high shooting intensity, but was not a licensed shooting preserve. Random soil samples (1 foot X 2 feet X 1/3 inch deep) were collected from all land cover types within the study sites. Each sample was washed with water through a test sieve to isolate any spent lead pellets in the sample. The gizzards were removed from wild roosters harvested within the study sites. Gizzards were X-rayed to determine if pellets were present and a necropsy was conducted to determine if pellets were ingested or simply lodged when the bird was shot. In addition to the gizzards collected from wild roosters from the study sites, 1,301 gizzards were collected from throughout the state to better understand the overall statewide prevalence rate of ingested lead pellets in hunter-harvested wild roosters. A capstone portion of the study involved force-feeding pen-raised hen pheasants with 1 or 3 lead pellets, then survival and weight gain/loss was monitored through a 3-week period in captivity.

What did the studies find and what do the results mean for pheasants? Similar to past research on other birds, ingested lead pellets were found in the gizzards of some hunter-harvested roosters. The prevalence rate ranged from 0.77 – 6.5 percent. Most birds ingested 1 or 2 pellets, but up to 13 ingested lead pellets were found in a single gizzard. There was strong evidence that pheasants were more likely to ingest lead pellets on shooting preserves where (it is assumed) more lead pellets were available than non-preserve areas.

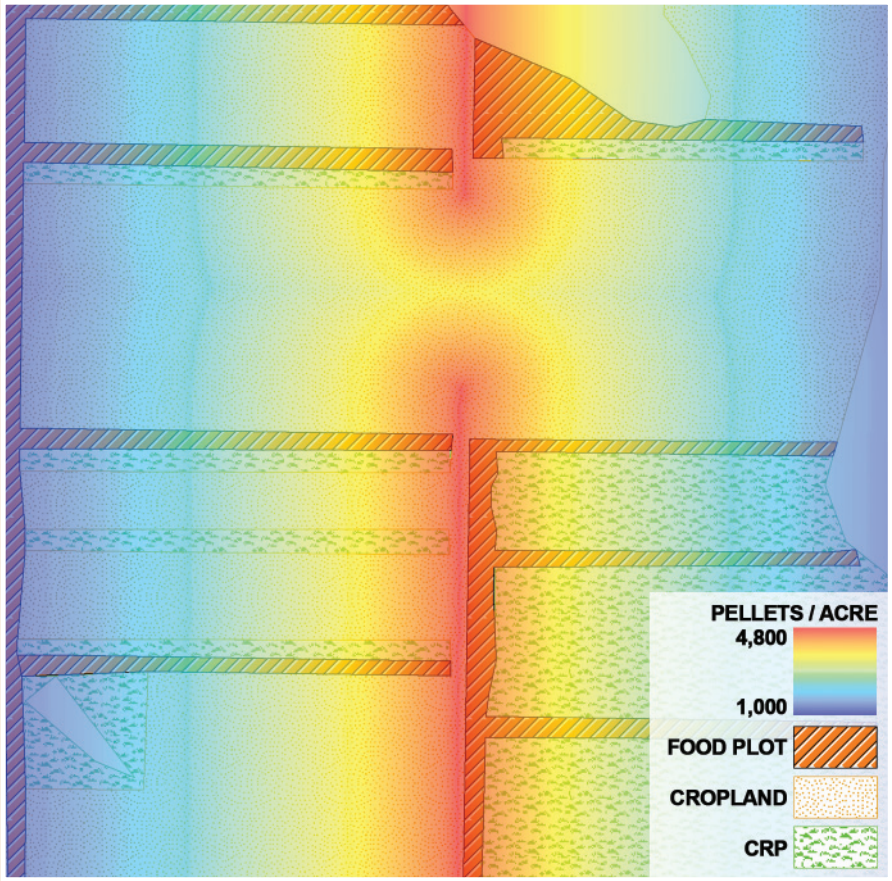
The density of spent lead pellets was highly variable across the landscape, and not surprisingly, tended to be highest where shooting was concentrated on each property. The study sites were often hunted in similar and systematic fashion to maximize hunter success which concentrated shooting intensity. For example, the 2012 study site was usually hunted by walking the property to the middle, where blockers were located. The highest concentrations of lead pellets were found near the location of the blockers.

Now we know pheasants do ingest spent lead pellets, and doing so is known to cause health problems

Photo © Keith Anderson

and death in other birds. Does this mean that at any given time, somewhere between 0.77 – 6.5 percent of pheasants have an ingested lead pellet and they would be expected to die? The results of the experimental pen study do shed some light on this subject. After force feeding captive hen pheasants with 1 or 3 lead pellets, there was no record of any mortality during the 3-week experiment. Additionally, the experimental groups did not show any significant changes in body mass when compared to a control group which was not administered any pellets. Similar studies in doves and waterfowl found substantial mortality during the 3-week post-treatment period and deteriorated body condition.

It is good news that pheasants do not appear to be ultra-sensitive to the acute effects of lead poisoning when exposed to relatively low doses in a captive environment. However, it is still unknown whether survival or reproduction is influenced by the ingestion of lead pellets in free ranging pheasants. A similar pen study conducted in Europe found reduced reproductive effort in pheasants laced with 2 - 6 lead pellets for 10 weeks. Given the known toxic effects of lead on vertebrates, it is unlikely that pheasants are completely unaffected by the ingestion of a small number of lead pellets. Among other effects, lead poisoning disrupts the nervous system, which could make pheasants more vulnerable to predation, thus decreasing survival of wild birds.



This graphic shows the predicted density of spent lead pellets on one of the test sites. Pellet density tended to be highest where shooting was concentrated, such as the areas at the end of food plots. This property was usually hunted by walking towards the middle with blockers at the end of food plots.

Does this mean there would be more pheasants if spent lead shot was not available in the environment? This is difficult to determine considering how pheasant populations sharply fluctuate in response to habitat quantity/quality and weather conditions. The ingestion of spent lead pellets is probably not a primary driver of South Dakota's pheasant population, but the issue should not be ignored. Our most popular game bird has been found to ingest spent lead pellets, a known poison, which originates from a completely preventable source. Spent lead shot from upland game hunting may also be encountered by waterfowl which are very susceptible to lead poisoning. Science may never unveil the true impact of this issue, which makes the choice to shoot non-toxic shot an emotional and ethical decision. Many issues influencing pheasant populations such as habitat loss and weather are not within sportsmen's control. The use of non-toxic shot is an example of an action that is completely within an individual hunter's control.

Prairie Management on Game Production Areas

"It seems to be a constant contradiction of itself.
It is delicate,
yet resilient;
it appears to be simple,
but closer inspection indicates that it is extremely complex;
it may appear monotonous,
but it is diverse and ever-changing throughout the seasons."

– James Stubbendieck, 1988, The Shortgrass Prairie

By Samantha Nichols, SD GFP Habitat Resource Biologist

Pleasant Valley Elk Area

Imagine if you will, acres of rolling hills covered with waist-high grass and the nodding heads of wildflowers here and there. In the bottom of the valley a patchwork of farmed fields can be seen. In the distance, a tall knob is covered with varying age classes of ponderosa pine, a narrow gravel road cuts through this, then abruptly turns 90 degrees and continues between hillsides. An old barn tells of days past when man made his living from the ground.

A scene like this can probably be seen in dozens of places west of the Missouri River in South Dakota. This particular piece of land can be found five miles or so as the crow flies, southwest of the city of Custer, South Dakota. Although this scene may appear fairly typical of most prairie regions, there is larger story at play, begging the question, how healthy is this prairie?

Historically, especially compared to areas towards the east, this region has seen minor disturbance from humans. Settling occurred late in the history of the state and was mainly due to the discovery of gold. Sub-prime conditions precluded large agricultural farms. A living made off the land here was earned by pure tenacity of spirit (or ill-advised stubbornness at best). While some chose to farm, others chose to run cattle, taking advantage of plentiful grasslands that had previously only seen use by buffalo and other large herbivores.

So this prairie should be in great condition, right?

Not necessarily. In the early 1900's, settlers had cultivated acres upon acres of rangeland, tilled up native prairie, and exhausted pastures all across the Great Plains. When drought conditions struck in the 1930s, everyone was scrambling to find a solution to the dire situation that was happening. Crested wheatgrass was this solution. It was hardy, extremely drought tolerant, highly palatable to livestock, and was incredibly useful in stabilizing the land surface. Hundreds of thousands of acres were seeded by private landowners taking advantage of government incentives. Furthermore, hay used for feed often contained exotic grasses such as cheatgrass, which dominate many plant communities today. That

Patrolling the prescribed fire completed in April 2007 on Pleasant Valley Elk Area.

and Tim Bradeen, former Habitat Resource Biologist

seemingly pristine prairie view could be a monoculture consisting of crested wheatgrass or other invasive species such as Kentucky bluegrass or smooth brome.

So what's the big deal? Cows like to eat it; deer and elk utilize it. Fantastic!

As we see historic rates of native prairie conversion to farmed acres, it is more critical than ever to maintain every piece of native prairie that we manage on our game production areas (GPA). These prairies evolved over time to stable system that can weather droughts, blizzards, extreme heat and wind. A strong forb component (leafy plant species such as purple coneflower that are not considered woody) provides food for insects. Birds and other small mammals utilize grasses and eat the insects. Their use helps spread the seeds. Bees use the forbs for pollination, as well as farmed species such as alfalfa. If you lose one component of this ecosystem, you are potentially eliminating the food source for other parts. In order to have a healthy ecosystem, it is best to have the most diverse native habitat available. While crested wheat may provide a great food resource for our big game species, it is a persistent cool season plant that out-competes native grasses and forbs, especially desirable warm season grasses. The same applies to farmed acres. These monotypic habitats look great at face value, but a closer look suggests something more unsettling.

Why do land management agencies care?

Consider: a main goal of the agency is to improve state-owned or managed public hunting areas for wildlife, thus improving hunter opportunity for our many sportsmen and women. Frankly, it's these same sportsmen and women who fund the majority of our projects through license sales and an excise tax on the sale of firearms and ammunition (Pittman-Robertson Act). Additional funds are awarded as grants from non-governmental organizations like the National Wild Turkey Federation (NWTF), Rocky Mountain Elk Foundation (RMEF), and Safari Club International (SCI) who obtain their funds through donations and fundraisers. Therefore, as land managers we want to make sure the public

is happy by providing the best habitat for wildlife to use. Sportsmen and women are not the only beneficiaries of managing for wildlife. There are many non-consumptive uses the public can enjoy that exist as a byproduct of effective habitat management.

One of the best ways to improve habitat conditions and meet our goal is to restore rangeland or farmed fields to native plant communities. A decision to do so is not made lightly. One must consider timing, weather, soil types, and desired results and weigh in the availability of manpower, funding, and time. Depending on the previous land use, there are several ways to accomplish a native grass restoration. No-till methods work great, especially combined with mowing and chemical treatments. Conventional farming methods can be useful in recent cropland. Use of prescribed fire and seasonal grazing are other methods that are effective in helping prepare a new seeding by reducing the amount of undesirable species and plant matter. Once we have choose our method, timing, and seed mix, we are finally ready to start the restoration.

Planting native grass on Pleasant Valley Elk Area in 2008.

... and a dash of luck

After the seeding is completed we are then at the mercy of nature. We can only hope that it gets enough rainfall; that a heavy rain or wind event doesn't wash it away; or that late spring snows or frost don't inhibit growth. There is a bit of finger crossing when we undertake projects in this semi-arid region. Prairie restoration isn't a perfect science, but given a little time and patience the results are usually worth waiting for and exceed expectations.

Restoring prairie habitat

The Pleasant Valley Elk Area was acquired between 1991 and 2009 as a series of purchases made with the help of the RMEF. Historically, the property was part of a production agriculture operation. Especially fertile land was tilled and planted to small grains such as millet and oats in addition to alfalfa. Other areas were used as rangeland. After maintaining the original food plots and cropland for a number of years, a decision was made reduce the overall acres in food plots and cropland. Don't misunderstand – having food plots can be quite useful to draw game species in and hold them over winter, however, there can be too much of a good thing with limited manpower, funding, and resources. Although we needed to maintain some of the existing fields for the Wildlife Damage Management program alfalfa production and to provide summer food plots for elk in the area, it was determined some acres should be converted back to native prairie.

This is where the factor of time comes into play. To have the most successful planting opportunities, we had to prepare the chosen acres accordingly. A prescribed burn was completed in late April of 2007, with a focus on reducing cool season grasses such as cheatgrass. By killing off some of these undesirable species, you are reducing the competition for the new seeding. The fields we were restoring to prairie were left to fallow, helping restore some nutrients to the soil. The next spring in 2008, this field was prepped by spraying with glyphosate to control the weeds that were present. Then we used a no-till drill to plant the field. The seed mixture contained both a native grass and forb component. The advantage of this method is that the soil is not turned over, so subsoil moisture isn't lost during the planting process; moisture that the new seeding will desperately need.

How successful were we?

As the picture at right shows, not very. We could have tilled this seeding up and put it back into farmed acres or we could have tilled it up and reseeded it, using more valuable funding. However, staff realized the importance of time. Restoring prairie is not a game of instant gratification. It takes knowledge and a heavy dose of

patience. This seeding was left alone until the early spring of 2013, when it was mowed to stimulate growth. Now take a look at the following photo, taken July 15, 2013.

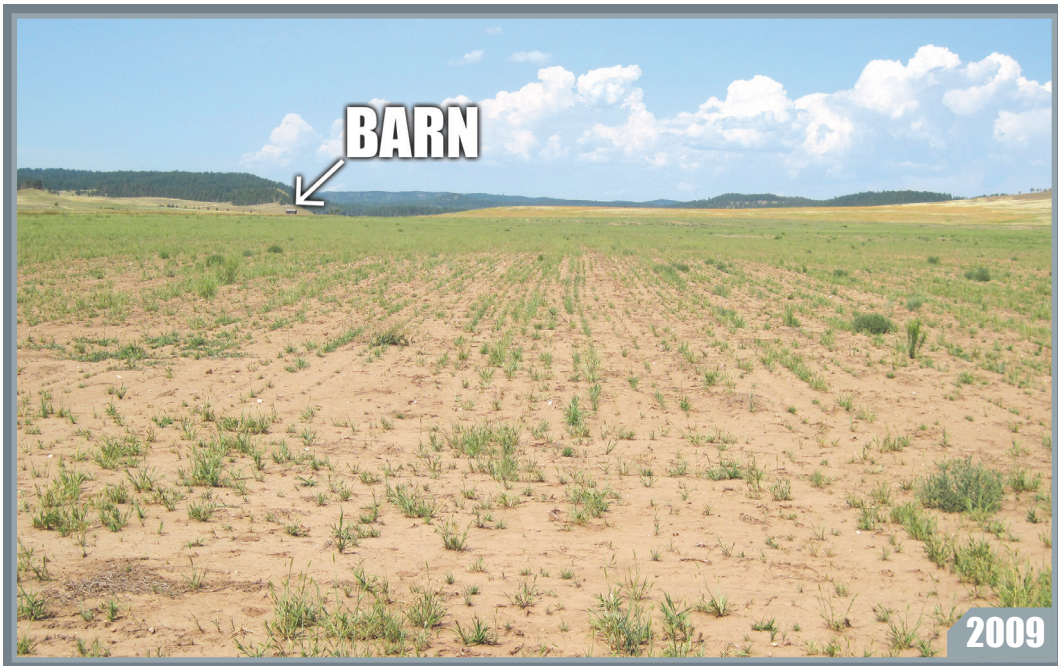
How successful were we?

What had been an expanse of bare earth with sparse bunches of grass is now a lush stand of native grasses. Time was the ingredient it needed, not more money or fertilizer or seed. This seeding was not without its own problems. Heavy rainfall events did some damage, washing out portions of the newly planted seeding. We had a drought year in 2012 in an area already pretty devoid of moisture. (This area averages just less than 19 inches of precipitation annually in a good year. To put this in perspective: Sioux Falls averages 26 inches; Iowa averages over 35 inches per year.) With a little time and persistence, we now have a lush stand of native grasses.

This is just one instance in time, on one GPA in our region. We used knowledge of typical weather and precipitation, existing soil conditions, previous land use, accepted methods, desired outcomes to formulate and implement a management goal of renovating an old farmed field to native grass. We go through this same process on other GPAs, using its very particular land use, soil, weather, etc., characteristics to design a management plan for that property. Some take little work, others need more improvements. In the end we hope that we can provide the best habitat for wildlife so that our sportsmen and women and other members of the public have the best opportunity to use it.

Land management is not something stamped out on the assembly line and packaged for distribution. In order to truly appreciate the work being done in habitat prairie management, let go of the desire for immediate results. Some of the best land managers are not looking at today, they are looking at what it will be three to five years from now. We only need to look to Mother Nature to see reinforcement of this concept. It took native prairies millennia to evolve in western South Dakota climate. The techniques used today – such as prescribed fire and grazing – mimic this natural succession of native prairie habitat.

Thus, we have the responsibility to conserve native plant communities and species diversity when the occasion presents itself on our properties. Otherwise we will be faced with more troubling statements like the one Aldo Leopold tells of in A Sand County Almanac: "What a thousand acres of compass plant looked like when they tickled the bellies of the buffalo is a question never again to be answered, and perhaps not even asked."



ABOVE: In 2009, the condition of the seeding one year after planting.

BELOW: Improvement of the grass seeding over a five year time period, emphasizing the importance of time.

Photo © Chad Coppess | TravelSD.com

RE-BORN TO BE WILD

CELEBRATING THE 100TH ANNIVERSARY OF THE RE-INTRODUCTION OF BUFFALO TO CUSTER STATE PARK

It's difficult to imagine what may have been going through the minds of early explorers during the 1700's upon the discovery of the American bison. They would have likely heard them miles away, before actually seeing them, a sound resembling distant thunder. As the sound got closer, the rumble revealed itself as the sound of trampling hooves mingled with the moaning and grunting of thousands of animals. The herds were so large that they possibly reached sizes 20 miles wide and 50 miles long, taking days to pass by.

By Brian Embrey, Seasonal Naturalist at Custer State Park

French settlers may have been the first non-Native American people to lay their eyes upon these massive herds of buffalo. Since the animal is native only to North America, it is understandable how the French could confuse the species with cattle and exclaim "la boeuf, la boeuf!" when noticing them for the first time. They were not cattle, but the French term for "beef" stuck and eventually the word evolved to become "buffalo."

During the 1870's, westward pioneers attempted to methodically destroy the American bison as a means of defeating the Plains Indians and eliminating their way of life. Before European settlements, the American bison roamed the prairies from northern Canada to Texas and from Utah to Illinois with an estimated population of 30-60 million. Since 1894, national parks, state parks and preserves and private individuals have prevented their total extinction.

Custer State Park played a prominent role in preserving this symbolic species by harboring and supplying buffalo to other herds in the United States and Canada, as well as educating and introducing the species to the public through events such as the Buffalo Roundup. Custer has contributed largely to the population estimate of around 500,000 in North America, an incredible recovery from the estimated 1,091 living in 1889.

Buffalo have not always called Custer State Park home. For a time following European settlement, this majestic symbol of the west was driven out of the now protected sanctuary. This year, Custer State Park celebrates the 100th anniversary of buffalo being re-introduced to Custer State Park.

ABOVE: This picture shows some of the original 36 buffalo introduced to Custer State Park in 1914.

RIGHT: Staff work the chutes during an early Buffalo Roundup.

THE EARLY YEARS

Common belief is that in 1887, the last wild buffalo was hunted in the Black Hills. Six years prior, a cattle rancher by the name of Fred Dupree directed his sons to capture some of the endangered bison calves along the Grand River of South Dakota near the Cheyenne River Indian Reservation. The Dupree family had been known for fur trading and raising cattle, but had also earned money as cowboys participating in buffalo hunts. In one summer alone, Fred Dupree's sons killed over 2,000 buffalo and exchanged the hides for profit.

Dupree began to raise a private herd from the captured buffalo calves. After his death in 1898, over 50 animals were purchased by another cattle rancher, James "Scotty" Philip. The buffalo were driven to Philip's ranch near Fort Pierre in 1901.

Scotty Philip managed the herd by hosting buffalo hunts and using some for meat consumption. Scotty died suddenly in 1911, but his herd of buffalo grew to more than 1,000, the largest herd in the world at that time. Following his death, the herd supplied numerous national and state parks with buffalo, including the Custer State Game Preserve (later Custer State Park) in 1914, which had been established just one year earlier. A herd of 36 buffalo were purchased and transported to the preserve via railroad and a specially built wagon, a trip that took 12 days from the Philip Ranch near Pierre to Custer State Park. The herd thrived and within three years the buffalo had increased to 50 head. By 1919, the population was up to 70 head. The descendants of those original 36 buffalo continue to roam in the famous herd of Custer State Park today.

Through the distribution of the buffalo throughout the country, Scotty Philip became known as "the man who saved the buffalo."

NATURAL HISTORY

The scientific name of the American buffalo is bison and they belong to the bovine family. The largest land animal in North America, male bison are known as bulls and can stand up to six feet tall at the shoulder. They can reach lengths of up to 12 feet long from nose to rump and weigh up to 2,500 pounds.

Female bison are known as cows and can stand up to 5 feet tall at the shoulder, measuring 7 to 8 feet long, and weighing up to 1,200 pounds. Both bulls and cows have horns that grow continuously throughout their lifetime and are not shed. Bison can run up to 35 miles per hour and can continue that rate for an extended period of time. In the spring and summer, bison create wallows, bowl-shaped depression in the ground made by digging up dirt with their horns. They roll around in the dirt to repel insects.

An entire herd could travel 10 to 15 miles across the prairie in a single day. It is believed that they have no particular migration habits but are only looking for locations to graze upon fresh grass. A herd could easily travel hundreds of miles in a given year.

Bison are ruminants, meaning their stomach has four chambers used for regurgitating and digesting cud. Each buffalo herd includes females of all ages and their calves. Bulls typically leave the herd before they are four years old, then they travel and eat on their own or with other bulls in a separate bachelor group.

In late summer the breeding season, or rut, begins. Bulls visit herds of cows to mate with and attempt to keep other bulls away. Bulls lock horns and shove each other until the less dominant bull retreats. The bull that proves dominant will mate with several cows. Calves are usually born between April and June following a nine-month gestation. Each cow will give birth to a single calf (twins are very rare) that is born a reddish-cinnamon color and will weigh between 30 and 70 pounds. They will nurse for about six months, drinking their mother's milk that is high in fat and protein. Bison mothers recognize their calves by scent and their cry, called a bleat. By the following spring, a calf could weigh up to 500 pounds.

While it may be difficult to tell one buffalo apart from another, they are all unique and have many physical differences. They differ in hide coloration, horn shapes and body sizes. Bulls are often noted to have larger heads with a broad shaped face, while the face of a cow would retain a somewhat narrower profile.

American bison are extremely tough animals built to endure the harshest seasons

and strongest storms the Great Plains have to offer. Their massive heads are used to push away heavy snow so they can reach the grass underneath. They are coated with thick protective wool during the winter and shed it to a thinner, sleek coat during the summer.

BUFFALO VS. BISON VS. TATANKA

While the term *buffalo* is acceptable and commonly used in North America, the word itself is really just the common name for this species. The American bison is more closely related to cattle than any type of actual buffalo, such as the water buffalo, found in southeast Asia. Unlike any type of buffalo, the American bison is native only to North America. Another name associated with the animal, *Tatanka*, was used by the Plains Indians.

The Plains Indians revered and honored the species. Hunting the animal provided many necessities for their lives on the plains. The meat was used for consumption, the hides for clothing and shelter and even the dried buffalo chips were used as fuel for fires (as the plains lacked sufficient trees for firewood). Their bones could be ground or sharpened into tools, and their bladders dried out and turned into containers for water. Plains Indians were nomadic tribes that continually followed large herds to reap the benefits. When the species was nearly lost, the Plains Indians suffered the most.

The Plains Indians' survival depended on the buffalo. Everything (including buffalo chips) was used in their daily lives.

Photo © Chad Coppess | TravelSD.com

BUFFALO ROUNDUP

Every fall the great spectacle of the Buffalo Roundup takes place at Custer State Park. Park employees, cowboys and cowgirls on horseback and in trucks gather to help herd and watch cowgirls and cowboys on horseback and in trucks round up the buffalo. Custer State Park draws a visitor crowd of over 14,000 annually to view the roundup.

The roundup serves as a top visitor attraction in the Black Hills, but it is also vital to the maintenance of the buffalo herd. During the roundup, the buffalo are funneled into corrals and checked for pregnancy, vaccinated and branded. The animals are sorted for auction, and while most stay in the park, 300 to 400 buffalo are sold to other herds to help supplement populations across North America. Custer State Park's herd is approximately 1,200 strong at the time of roundup each year. Many large bulls are not included in the roundup, left behind to roam the park in solitude, because they are more aggressive and often isolated from the rest of the herd.

"For herd management, the main purpose of the roundup is to take off the surplus of the population, do the branding of the calves and monitor the overall health of the animals," said Chad Kremer, the Custer State Park buffalo herdsman.

Because the roundup is so vital to the maintenance of the Custer State Park herd, changes are made over time to make the event the least stressful to the buffalo as possible.

"We went from a two-day event to a one-day event where we actively push the buffalo. We used to do two-rounds-ups, once in the winter and once in the fall, and we eliminated the winter one so we are only handling [the buffalo] once a year," Kremer said. "At one point, we

The Annual Buffalo Roundup at Custer State Park has become a tourist attraction; bringing in spectators from all over the globe. This Buffalo Roundup takes place every year in late September.

Photo © Chad Coppess | TravelSD.com

basically ran the entire herd through the system in a day and a half, now, through the corral, we take 3 to 4 days to slow the whole process down and make things safer for the animal."

This process has proven to be necessary for both the health of buffalo, as well as preventing overpopulation in the park. In the 1940's, an abundance of buffalo, elk and horses overgrazed the park's rangelands, leaving them in poor condition. Since then, the park has closely monitored herd sizes. The population of buffalo in Custer State Park is dependent on the annual amount of rainfall the area receives. This is an indication of the amount of good rangeland Custer State Park can expect. Heading into the fall, the park can expect to have up to 1,350 buffalo, including young calves. However, a safe population over winter months is around 900 head.

The entire roundup can be viewed from several areas within the park. Taking place on the last Friday of September, followed by the park's weekend Art Festival, the Buffalo Roundup is a fantastic opportunity to witness real cowboys and cowgirls at work, as well as learn about the complexities of maintaining a large buffalo herd.

#1 TURNS 100

Custer State Park is proud to celebrate 100 years since the return of the buffalo, an event that has been commemorated through a new buffalo themed naturalist program this summer. The program, entitled "#1 Turns 100! 100th Anniversary of the Re-introduction of Buffalo to Custer State Park" takes place daily from Memorial Day to Labor Day.

While history cannot be changed, the future of this iconic species appears bright. There is little doubt how important the American bison was to life on the North American prairie prior to their endangerment. As a native species, their existence shaped the eco-system which many animals and a few humans adapted to.

Human beings were responsible for the endangerment of this animal, but humans are also responsible for bringing it back from the brink of extinction, and assisting in the continuation and growth of the species today. It is up to us to instill within ourselves and others that the American bison requires conservation if we are to occupy their native habitat. 100 years is a great start.

For more information, visit:
www.gfp.sd.gov/state-parks

Landowner Conservationists

A majority of land that lies in our state is owned by private citizens. From the rolling hills of the Missouri River breaks to the beauty of the glacial lakes, private landowners "carry a majority of the water" when it comes to the habitat South Dakota's critters live in. These two award winning landowners prove that ag and wildlife not only do go hand and hand, but should.

by Chris Hull, SD GFP Information Specialist

South Dakota has lost an estimated 1.8 million acres of grasslands since 2006. Sitting on the top of a hill on the Perman family's Rock Hills Ranch, you would swear the entire world was made of grass. Rich, green, lush tall grass, sprinkled with native wild flowers and the yellow of wild sweet clover. Lyle likes the thought of that.

"The world needs grasslands, and lots of them," Lyle says as he looks across the sea of green, knee high grass and even taller yellow sweet clover. He pauses, tilts his head down slightly (which is something I noticed he does when he really wants to get a point across) "We need to save the grasslands. People, and especially people who are removed from the land, need to know the importance of grasslands and what they mean to the food that is on their table."

Lyle's rotational grazing system, and his motto "Our number one goal is not to let a drop of water leave the ranch," are important parts of the holistic ranching approach his family uses in managing the ranch that won them the 2014 South Dakota, Leopold Conservation Award.

The Leopold Conservation Award is presented by the Sand County Foundation, the South Dakota Grassland Coalition, the South Dakota Cattlemen's Association and many other partners, including South Dakota Game, Fish and Parks. The partners intent is to annually recognize extraordinary achievement in voluntary conservation, inspire other landowners by example and help the general public understand the vital role private landowners play in conservation success.

The Perman family is the fifth South Dakota Leopold Conservation Award winner, and while the award itself pronounces "extraordinary achievement" the Perman's don't see what they are doing as anything out of the ordinary.

Leopold himself said, "The landscape of any farm is the owner's portrait of himself," we have to live with nature and use it to our advantage. "This ground around us is grassland, it's not farmland, so it's my job to make it the best possible," Lyle said.

The Permans run 250 cattle on their ranch, using a rotational system to graze each pasture once in a year, although this year, the prevalence of the aforementioned sweet clover will allow some pastures to be grazed twice.

Doing things differently isn't always easy.

"When you try different conservation practices, you need great partners," said Lyle's son, Luke. "You need patient partners, and lots of them to be good stewards of the land."

The Leopold Conservation Award has a $10,000 cash prize, but for the Permans and past award winners, the money is secondary. Haakon County rancher, Rick Doud, is a past winner and feels the award brings something more to the table.

"I didn't even know something like this existed," Doud said of the Leopold Award. "The greatest thing I have found with winning, is meeting like-minded people, people who are tied to the land."

Chris Schellpfeffer, of the Sand County Foundation, expanded on Doud's and Perman's comments. "The Leopold Award gives landowners and conservationists a platform to discuss the holistic process. As we get further and further from the family farm, people are removed from the process

and these awards give us a chance to reach these people and discuss long term sustainability."

These all seem like lofty goals for a family who lives near Lowery, SD, but their love of the land and what they do with it is their first and foremost objective.

"We want to work WITH the land," said Lyle's wife Garnet. "It's our love of the land that makes all this work." "We have more ways we can improve what we have, work with what comes along and feel blessed with our land and family," Lyle said. "I am a story teller and I have a good story to tell."

Jim Faulstich is the kind of guy who is always on the go. Jim has a livestock operation north of Highmore, SD. That area used to be smack dab in the middle of "cattle country," but high commodity prices have led to the conversion of the areas lush grasses to crops.

Jim is also the chairman of the South Dakota Grasslands Coalition, so it shouldn't be any surprise that Faultich's Daybreak Ranch hasn't converted any of the 5,300 acres in his operation to cropland. While Jim does no-till farm 800 acres of alfalfa, corn, sunflowers oats and wheat in rotation, his management goal is "to operate a profitable ranch while improving the natural resources available and pass the ranch to the next generation in better condition in all facets."

Like all farmers and ranchers, Jim is a businessman, and 30 years ago, he had to make a difficult business decision.

"In the mid 1980's we were in financial trouble as many people were in agriculture in that time frame, so we had to change or we were going to go out of business. We placed our natural resources as a top priority at that time and we since then have continued to learn and improve," Faulstich said.

The Faulstich's made the conversion to a rotational grazing cattle operation out of necessity, but Jim made the change, the way he does everything, full bore.

(Holistic management) "Isn't something we have always had as a goal," he said. The switch to rotational grazing may have been necessary to keep his business viable, but it wasn't necessarily easy.

"Change is always difficult," Jim said. "The motivation from seeing positive results has led us to move forward and not be concerned about public perception."

While the Faulstich's have several principles that are key to their day to day ranch management, such as continuous learning, goal setting, managing and operating in harmony with nature, managing the water cycle and managing for grass and others, "The key is intensive management, not necessarily intensive grazing," said Faulstich.

The Faulstich family was recently awarded the Association of Fish and Wildlife Agency's National Private Lands Fish and Wildlife Stewardship Award. Wildlife agencies from across the nation nominate landowners in their states for this prestigious award. The Faulstich's received this award due to their holistic management and heavy rotational grazing system.

The Faulstich's operation not only won them a national award, it received the attention of Secretary of the Interior, Roberto Salazar.

"Secretary Salazar came out and toured the Faulstich ranch," said former SD GFP secretary and current GFP commission chair, John Cooper. "He learned a lot about grasslands and the conversion of quality grasslands to marginal croplands."

The grazing strategy at the Daybreak Ranch calls for short periods of heavy grazing pressure alternating with long periods of rest and recovery. Livestock now graze year round, which requires certain pastures to be rested from grazing for most, if not all of the growing season. These un-grazed pastures provide large tracts of nesting habitat for many different species of wildlife.

While Faulstich still needs the cooperation of Mother Nature and solid business partners, he feels that his system has eased some of the ag related stress he felt early in his career as a farmer and rancher.

"It's really enjoyable to not live in fear of running out of forage, which was the case a number of years ago," Jim said. "Working in harmony with nature tends to cause less stress because you are less likely to be affected by drought and economically challenging times. With proper management of the resources and a drought plan, that should never happen again."

Jim and his family believe that stewardship of the resources leads to better health of everything, benefiting land, water, livestock, wildlife and people.

"The Faulstich's and Perman's are great examples of agriculture producers who have put the puzzle pieces together," said Cooper. "They have an eye on all the parts of their surroundings and are using that ground to prosper, as well as be efficient and responsible stewards. I have learned a lot about ag and land management from them. Their awards are well deserved."

Acclaim and awards are nice, but Jim echoed Lyle Perman when he said, "The people and the connections that we make by talking about this way of doing things, leaving the land in as good of a condition as it can be for future generations, that is what is important."

DakotaFlora

Bladderworts

by Dave Ode, GFP Botanist

Carnivorous plants have always captured the human imagination and science fiction has even magnified them into man-eating plants, like Morticia's "African Strangler" in the Addams Family television show, or the "Devil's Snare" in the Harry Potter book and movie series.

Fortunately, there are no man-eating plants and while there are scores of plants that, if eaten, can poison humans; there are relatively few plants that actually trap and digest small animals. The largest carnivorous plant is a member of the "monkey cup family" *Nepenthes rajah* found in a remote corner of Borneo. It is a pitcher type carnivorous plant with a cup or "pitcher" that can hold almost a gallon of liquid. The cap over the pitcher produces nectar that attracts a variety of insects and vertebrates like frogs, lizards and small rats, all of which occasionally fall into the pitfall chamber and drown, allowing the plant to digest them for nutrients.

South Dakota's only wild carnivorous plant is the bladderwort, specifically two species of bladderworts, common bladderwort (*Utricularia vulgaris*) and lesser bladderwort (*U. minor*). Both are rootless, free floating, aquatic plants that produce yellow, snapdragon-like, flowers on peduncles that extend above the water's surface. Both are circumboreal species growing at northern latitudes of both North America and Asia. South Dakota is at the southern edge of the range for lesser bladderwort, and it is quite uncommon in the state, whereas common bladderwort is found throughout much of South Dakota where it inhabits still, shallow waters of prairie wetlands, beaver dams, back bays, ditches, and ponds.

Bladderworts take their name from the small "bladders" that are produced in great numbers on their finely divided leaves. Each bladder is a hollow, egg-shaped container ranging from one to four millimeters in diameter with a trap-door at the tapered end. Surrounding the trap-door are two types of filaments, branched filaments called "antennae," and unbranched filaments called "bristles" both of which combine to form a funnel that leads to the trap door. There are also "trigger hairs" at the base of the door, which, when touched, release the trap door. Within the walls of the bladder are specialized cells that pump water out of the chamber creating a negative hydrostatic pressure,

Bladderwort's feathery leaves develop small bladder-shaped traps for capturing small aquatic animals.

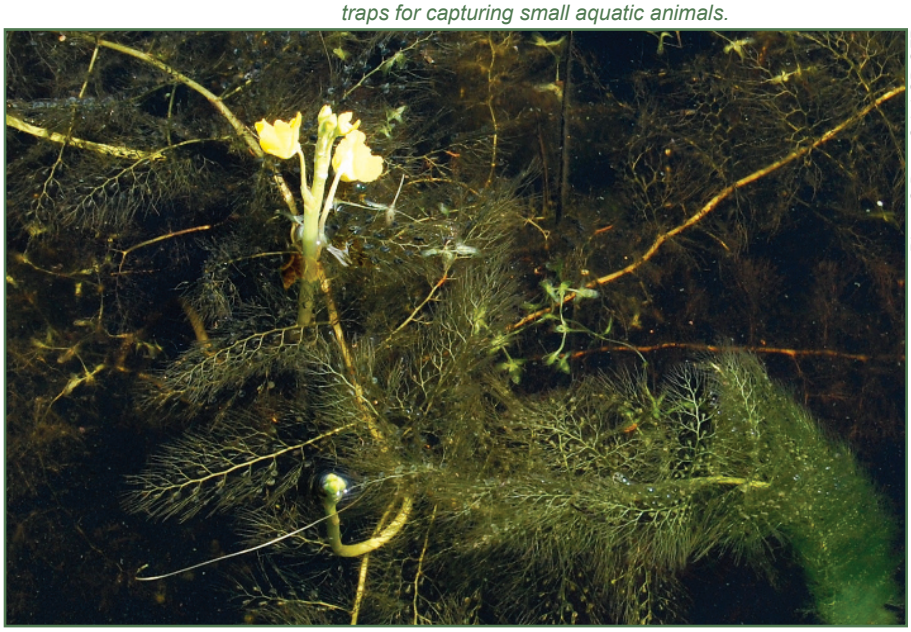


Photo © Dave Ode | SD GFP

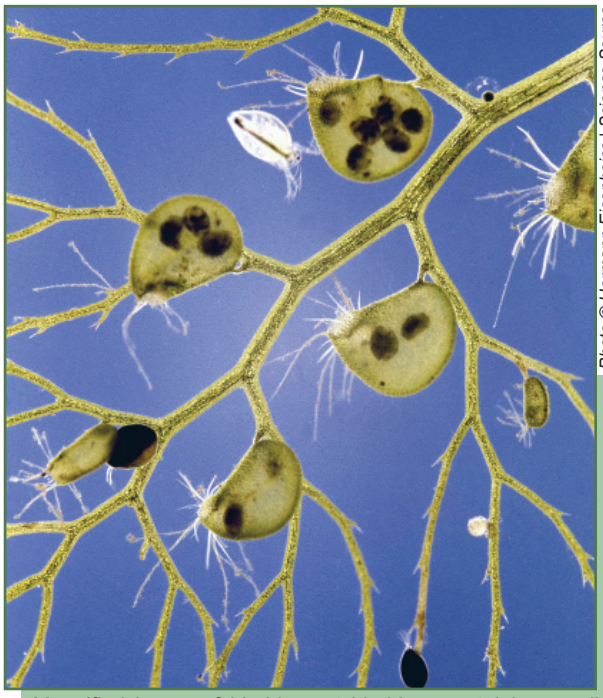


Photo © Hermann Eisenbeiss | Science Source

Magnified image of bladderwort bladders containing small aquatic invertebrates like seed shrimp and water fleas.

so that when the trap door is sprung, water and any material near the door is sucked into the chamber, much like a fish sucks prey into its mouth. After the trap is sprung, the door snaps shut and water is again pumped out of the chamber to reset the trap. Scientists have measured the speed of the trap door which opens and closes in 15 to 25 milliseconds – one of the fastest-acting traps in the plant kingdom. And, it only takes about 20 minutes to reestablish the negative pressure that resets the trap. The presence of prey within the bladder triggers the production of digestion enzymes and depending on the size and digestibility of the prey, it may take hours or days to be completely dissolved and absorbed.

The ingenuity of this trapping mechanism is only apparent if you can imagine the micro-world of this aquatic environment. The smallest organisms representing the base of the food chain are various algae, bacteria and small bits of detritus. These are generally too small to be seen with the naked eye and a single teaspoon of water from a bladderwort inhabited wetland would hold several million bacteria and several thousand free-floating algae, or phytoplankton. Grazing on these algae, bacteria, and detritus would be hundreds of zooplankton, tiny animals like rotifers (members of the Phylum *Rotifera*), or seed shrimp (crustaceans in the Class *Ostracoda*), or water fleas like *Daphnia* (crustaceans in the Order *Cladocera*), or copepods (crustaceans in the Subclass *Copepoda*). These little animals are about the size of a printed period in this sentence"." but can range up to a couple millimeters in size. As they forage in the water column they often follow strands of filamentous algae plucking bits of food that accumulate in the tangles of fibers. So, when they come to the antennae and bristles of a bladder they follow them as they would follow a strand of algae down toward the trap door often springing the trap. Charles Darwin proposed in 1875 that the bladderwort antennae and bristles served to funnel prey into the trap but it wasn't until the 1970s that this was experimentally tested and proven to increase trap success.

Common bladderwort grows in shallow water wetlands and produces yellow flowers above the water's surface in mid to late summer. Shown here with a couple pink-flowered swamp smartweeds. Photo © Dave Ode | SD GFP

There are over 200 species of bladderworts, making it the largest genus of carnivorous plants. Bladderworts also have a world-wide distribution, occurring on every continent except Antarctica. In the late 1980's Dr. Peter G. Taylor a botanist with Kew Royal Botanical Garden in London, after decades of meticulous research, published his 724 page taxonomic monograph on the genus *Utricularia*. In this seminal work, Dr. Taylor segregates the North American and east Asian plants of common bladderwort into the species *Utricularia macrorhiza*, or "greater bladderwort," leaving *Utricularia vulgaris* as the common bladderwort of Europe, North Africa and western Asia. The two are distinguished by the relative length of the flower spur compared to the flower's lower lip and the distribution of glands on the inner surfaces of the petals. Other taxonomists treat our North American plants as subspecies *macrorhiza*, of the more broadly defined *U. vulgaris*. Whatever the precise taxonomy, this bladderwort is the most widespread member of the genus in North America. Without roots, it still has the ability to overwinter by creating winter buds or "turions" at the end of each growing point that sink to the bottom of the pond and wait for spring, when they begin to grow into long, free-floating, leafy stems. Flowers are produced in mid-summer and appear to be pollinated by bees. It's almost like these parts of the plant live in separate worlds – the pretty yellow flowers rewarding bees with sweet nectar; while below the water's surface, little invertebrates come swimming along only to be sucked into a cage where they are eaten alive. It's an amazing feat that has fascinated students of plants for over 100 years.

Bicycle Day

By Emilie Miller

I struggled to open my eyes, but eventually the blurry form in front of me came into focus. There stood my 5 year old daughter, in green frog slippers, a pink princess nightgown and a rainbow kitty bicycle helmet.

"Morning, Mom. It's Bicycle Day."

Ah yes, Bicycle Day. The previous day's beautiful weather had inspired an impromptu trip down the bike aisle. We were all excited and anxious to get outside after a cold spring, envisioning family bike trips to the park, the ice cream shop, the library.

Growing up on a farm, my bicycle was a part of daily life. It was practically an extension of my body. My brothers and I would ride to the barn at chore time, race down the slope from the grainery scale and take leisurely trips to the nearby creek to explore the wonders found there.

My kids didn't have those opportunities. Our rural home on the bluffs of the Missouri River didn't lend itself to bike riding, so we never bought them bikes. I always felt bad about that. My girls were 5 and 8 years old, and the most bike riding they had done was as toddlers on a tricycle on our deck. An upcoming move changed that though. Our new house would be near a bike path, and within biking distance to all those other wonderful places we dreamed of. I had promised them bikes when we moved.

We were just looking, since moving day was a month away, but the girls fell in love. They even named the bikes – Beauty and Princess. And they were the only ones of those styles left. What else could I do? I said that we'd come back tomorrow with the pickup and make all their dreams come true. They dubbed it Bicycle Day.

I pacified them the rest of that afternoon by buying their bicycle helmets, which they wore all through getting groceries (tags and all), on the ride home and that night (except for during supper). Their excitement was hard to contain. At 6:30 a.m. the next morning, here they were again, ready to go.

After a good breakfast, we drove to the store. We bought Beauty and Princess (thank goodness no one had bought them in the 15 hours since we left), as well as training wheels for each. There weren't any knee pads in their size, but we figured they wouldn't be crashing much with training wheels, so we decided we could go without for now.

At nearby Farm Island Recreation Area, armed with a socket wrench and sitting in the grass, I put the training wheels on 5 year old Kiersten's bike first. The girls supervised, anxious.

Then, disaster struck. Beauty, the bike Kaylee, age 8, picked out, had axle pegs on the back wheel - those big tube things sticking out. And I didn't have the right tools along to take them off. Training wheels weren't going to work.

There was no going back now. No driving home to find the right tools. No returning Beauty – she was Kaylee's soul-bike,

after all. It was bike day, and we were going to ride bikes TO-DAY.

After Kaylee's blubbering died down to a whimper, I convinced her that it would be okay. That I would steady her bike and teach her to ride on two wheels. We would still ride bike.

I figured I'd get Kiersten going down the trail first with her training wheels and Kaylee and I could follow. But it wasn't working.

Just as I was about to start with Kaylee, we heard a crash. Princess was on her side. I righted her, as well as Kiersten (who was unhurt). On my walk back to Kaylee, there was another crash. This went on for a while. Every few feet, Kiersten's bike would slump to the left, then descend in a slow motion crash to the ground.

How on earth can a kid with training wheels on her bike tip over so much? Isn't their whole purpose to prevent that?

After each tip over, I'd hear Kiersten say "my bike is broken," "this is no fun," and even one "I quit!" Kaylee was whining that I hadn't helped her at all yet. I was running back and forth between the two. My patience was running out and a melt-down (or two) felt imminent.

This was more stress than I was planning on today. The girls' dad had stuff to do at home, so he didn't come with us. They outnumbered me. It had seemed so easy: buy the bikes, put on some training wheels and watch them go. As Kiersten likes to say, "Easy, peasey, lemon-squeezey."

Crash. "Mom! My bike is ba-roken," complained Kiersten.

"Mom, don't leave me again," pleaded Kaylee.

In my head, the scene of the happy biking family disintegrated. The sky turned red and the trail below us fell away in chunks into the dark abyss. This is not going to happen.

Deep breath. Surely she's not that unbalanced. Something has got to be making her bike tip over.

Closer inspection revealed that one of the training wheels was set a mere quarter of an inch higher than the other, but it was all I had to go on. We got out the socket set and adjusted it. She hopped on and rode off. No crashes. Well, fewer crashes. Cue the hallelujah chorus. She pretty much took care of herself from that point on, waving to us when she'd reach the end of the trail.

Now, to the even harder task at hand: teaching Kaylee how to ride a bike.

First thing's first: show her how to get on. Wait, scratch that, you can't really get on until you know how to pedal and balance.

I held her bike while she hopped on, so off-balance I lost my grip. Crash.

Okay, so maybe we learn how to crash first. And, of course we didn't buy any knee pads!

The expression "like riding a bicycle" means you'll never forget the skill once you've learned it. I can ride a bike fine, but teaching it is another story.

I wasn't the best teacher. I told her to lean with her shoulders if she felt herself tipping, then the next minute I told her to lean with her hips. I fought an internal conflict of supporting her completely or letting her fall. A few looks following crashes clearly said she felt I did not make the right choice.

Kaylee was a trooper though. She never cried and she always got back up. She called me on my erroneous suggestions, and then we figured out the right way together.

I started letting go more often. Five seconds. Twelve seconds. Back to seven. Up to 20. I'd lose count with my excitement, and with seeing hers.

"I'm doing it, Mom! I'm doing it! I'm riding a bike!"

Even though it felt like an eternity (most of it that 15 minutes of lopsided training wheels), by the end of an hour, she had a pretty good handle on it. By the end of two hours, she was good enough that I could jog alongside and take pictures. A short 15 minutes later, she joined her sister in leaving me in the dust. I settled for taking photos of their backs.

We definitely have some more work to do. For instance, she thinks that bailing out and getting off her bike are one and the same. Brake isn't in her vocabulary at all. But she loved it.

We celebrated with ice cream afterwards, but Kaylee didn't seem to be enjoying herself. "I'd rather be biking," she explained. Kiersten agreed.

How about that? Biking over ice cream. I can't say I understand it, but I like it.

They wanted to bike some more, but I told them we needed to go home.

"We can't bike all day," I said. "Don't you want to spend time with Dad?"

"Well yeah," Kaylee answered. "But we didn't just get Dad."

They finally agreed to go home peacefully when I promised at least one Bicycle Day a week. I figure that by the time we move, they'll be pros.

Plus, if we go often enough, maybe they'll stop wearing their bicycle helmets to bed.

GETTING THE LEAD OUT

By Eileen Dowd Stukel, SD GFP Senior Wildlife Biologist

Photo © Wildlife Center of Virginia

Unlike some elements that are needed or beneficial in small amounts, lead has no favorable effect on humans or wildlife, and its harmful properties have been known for many years. Over the years, regulations have drastically reduced lead in gasoline, paint and food cans to protect human health. With some exceptions, lead remains a prevalent component of fishing tackle and ammunition for hunting and shooting sports.

In 1959, Frank Bellrose published an influential report called "Lead Poisoning as a Mortality Factor in Waterfowl Populations." He and other waterfowl experts estimated that as much as 2-3 percent of the fall season waterfowl population in North America died from lead poisoning during that era. Ducks, geese, swans and coots ate lead pellets that had settled in wetland sediments. Once in a bird's digestive tract, the pellets eroded or were ground down to release lead, which was then absorbed into the blood and tissues. In addition, the bald eagle, formerly an endangered species in the U.S., was often poisoned by feeding on waterfowl killed or crippled with lead shot.

The U.S. Fish and Wildlife Service announced a five-year phase-in period for lead restrictions from 1986-1991. Many states passed state bans to protect waterfowl and in the process hopefully reduce impacts to other wildlife. Lead shotgun pellets have been banned on federal waterfowl hunting areas in the U.S. since 1991. Canada passed a similar ban in 1999 to benefit wildlife, but also to help reduce lead ingestion by subsistence hunters. South Dakota's requirement that nontoxic shot be used for all waterfowl hunting began in 1988. Beginning in 1998, nontoxic shot was also required for small game hunting in the state on most public lands. Exceptions are private lands leased as walk-in areas, state school lands and national grasslands.

The good news? Waterfowl experts estimated the lead ban saved 1.4 million ducks in the U.S. by the time of the 1997 fall migration. The not-so-good news? Many small game bird species, such as pheasants, quail and mourning doves, continue to be exposed to lead ammunition. The debate about additional bans on lead ammunition has been waged for years as biological impacts are weighed against effects on hunting recruitment and retention.

The Raptor Center, located at the University of Minnesota, led by Dr. Patrick Redig, is a world-renowned facility for raptor education, research and rehabilitation. Dr. Redig coauthored a study with Dr. Janet Kramer in which bald and golden eagles admitted to the facility were analyzed for lead exposure. Cases were sorted into two time periods, 1980 – 1990 and 1991 – 1995, corresponding to time periods before and after the federal ban on lead ammunition for waterfowl hunting. They found lead poisoning among eagles examined did not end with the 1991 ban, but shifted from acute, often fatal poisoning from 1980-1990 to chronic lead exposure from 1991-1995. More lead-exposed eagles were admitted during November and December, with "miscellaneous trauma" as the main cause of their admission to the facility.

Why didn't lead poisoning of eagles stop or slow after the 1991 ban, with which hunters have generally shown good compliance?

The authors speculated eagles in the upper midwest were exposed to lead from small game mammals and birds hunted with lead ammunition, gut piles from big game killed with lead or from fatally wounded, but unretrieved big game injured with lead. They also believed lead exposure in the scavenging eagles affected the birds' ability to hunt and avoid hazards, such as powerlines, leading to the various traumas that caused them to be brought to The Raptor Center.

A follow-up study by Cruz-Martinez and others published in 2012 attempted to better define the sources of lead poisoning among bald eagles admitted to the same

Photo © Wildlife Center of Virginia

facility from 1996-2009. They found a higher number of bald eagles had elevated lead levels starting 13 weeks after deer seasons began in Minnesota and Wisconsin, the sources of most of the bald eagles examined in the study. They also found eagles recovered from areas where rifles were used for deer hunting had a higher risk of elevated lead levels than those from shotgun zones. This was likely due to higher rifle velocities that caused greater fragmenting upon impact, when compared to shotgun slugs. In addition, the researchers found higher copper concentrations in livers of eagles with elevated lead levels, likely from the ingestion of copper fragments from lead-core, copper-jacketed bullets.

Despite this challenge, the bald eagle continues its recovery in the U.S. Another species, the California condor, continues to struggle, challenged in large part by its susceptibility to lead in the carrion (dead animals) that it relies on. Like the turkey vulture found in South Dakota, the California condor does not hunt live prey, but must find carrion to eat. To aid this species' recovery, the State of California banned lead ammunition in 2008 for big game hunting and hunting of other species, such as coyotes and ground squirrels, within the condor's range in the state. In a research study led by Dr. Terra Kelly, lead levels in golden eagles and turkey vultures were evaluated as surrogates for the condor in determining whether the lead ban had its desired effect. Although golden eagles also hunt for live prey, they often shift to more carrion during the winter. Both species showed drastic reductions in lead exposure rates when levels were compared before and after the lead ban in 2008.

In 2008, The American Fisheries Society and The Wildlife Society cooperatively produced a review titled "Sources and Implications of Lead Ammunition and Fishing Tackle on Natural Resources." This review also discusses the impact of increasingly popular shooting sports on lead levels among participants and the amount of lead associated with shooting ranges.

How does this affect you as a hunter? A recent public attitude survey in the state found the majority (63 percent) of South Dakotans would support the mandated use of nontoxic bullets for shooting prairie dogs to reduce lead poisoning of eagles, hawks and other wildlife. Sources cited in this article and a few websites are listed below to allow you to draw conclusions.

For More Information:

U.S. Geological Survey:
www.nwhc.usgs.gov/publications/fact_sheets/pdfs/lead_poisoning_wild_birds_2009.pdf

The Raptor Center, University of Minnesota:
www.raptor.cvm.umn.edu/

American Bird Conservancy:
www.abcbirds.org/abcprograms/policy/toxins/lead-fact-sheet.html

TWS/AFS Technical Review 08-01:
wildlife.org/documents/technical-reviews/docs/Lead08-1.pdf

Bellrose, F. C. 1959.
Lead poisoning as a mortality factor in waterfowl populations.
Illinois Natural History Survey Bulletin 27: 235-288.

Kramer, J. L. and P. T. Redig. 1997.
Sixteen years of lead poisoning in eagles, 1980-95: An epizootiologic view.
Journal of Raptor Research 31: 327-332.

Kelly, T. R., P. H. Bloom, S. G. Torres, Y. Z. Hernandez, R. H. Poppenga, W. M. Boyce, and C. K. Johnson. 2011.
Impact of the California lead ammunition ban on reducing lead exposure in golden eagles and turkey vultures.
PLoS ONE 6(4): e17656. doi10.1371/journal.pone.0017656

Cruz-Martinez, L., P. Redig, and J. Deen. 2012.
Lead from spent ammunition: A source of exposure and poisoning in bald eagles.
Human-Wildlife Interactions 6: 94-104.

ParkNotes

S.D. STATE PARKS TO HOST HALLOWEEN WEEKEND EVENTS

PIERRE, S.D. – Campgrounds are open year-round and several parks will host trick-or-treaters at special events this Halloween season.

- Halloween Night Hike, October 24-25, 5 - 8 p.m. MT at the Peter Norbeck Visitor Center. Participants take a guided one-mile night hike along a path lit only by jack-o-lanterns. Geared to expose families to the interesting and humors sights, sounds, and night life of Custer. Hikes take place every 15 minutes. Reservations are required. For more info or to make reservations call 605-255-4464.
- Spooktacular Trick or Treat Trails, Oct. 25, at Big Sioux Recreation Area near Brandon. Follow reflective signs with flashlights on a scavenger hunt and gather prizes and treats at stops along the trail. Hot chocolate, cider and coffee will be available. Bring a flashlight. The fun begins at 5 p.m. CT. For more info call 605-582-7243.
- Trick or Treat Trails, Oct. 26, at LaFramboise Island Nature Area in Pierre. A trail marked by reflective signs will guide participants through the wooded nature area. Trick-or-treaters can gather prizes, informational material and treats by visiting event sponsors at stops along the trail. Bring a flashlight. The Halloween fun runs from 4:30 to 7:30 p.m. CT. For more info call 605-773-2885.
- Forest Drive Night Hike, Nov. 1, at Richmond Lake Recreation Area. Fun for all ages can be had at this frightening event. Explore the trails in the dark as you participate in a scavenger hunt. Be careful as there may be spooks along the way. For more info call 605-626-3488.

There is no cost to participate in any of these events, although a park entrance license is required at Custer, Big Sioux and Richmond. Participants should wear comfortable hiking shoes and dress for the weather. Children must be accompanied by adults. Costumes are encouraged for the hikes but not required.

CUSTER STATE PARK HOSTS ANNUAL BUFFALO ROUNDUP AND ARTS FESTIVAL

CUSTER, S.D. – A one-of-a-kind western weekend awaits at the annual Custer State Park Buffalo Roundup and Arts Festival Sept. 26 through 28.

The Buffalo Roundup begins at 9:30 a.m. on Friday, Sept. 26, near the corrals along the Wildlife Loop Road. The parking areas open at 6:15 a.m. and close at 9 a.m. For safety reasons, spectators are asked to remain in the viewing areas until all the buffalo are corralled, around noon. The public is then invited to take free shuttles into the corral area where testing, branding and sorting of the buffalo will begin at 1 p.m. in preparation for the Nov. 15 auction. Food and arts and crafts booths will also be available near the corrals on Friday.

"The Buffalo Roundup brings over 14,000 spectators to Custer State Park to see the park's herd of 1,500 buffalo," said Craig Pugsley, Custer State Park visitor services manager. "In addition, the weekend arts festival features lots of entertainment and activities as well as over 100 arts and craft exhibitors, including western and Native American artwork and a number of food vendors."

In addition to Friday's Buffalo Roundup, Custer State Park will host a weekend of entertainment, craft and art booths and fun for the entire family at its annual Arts Festival on Saturday and Sunday, Sept. 27 and 28. Both days start at 8 a.m. with a pancake feed, entertainment kicks off at 8:30 a.m., and the arts and crafts booths will be open from 9 a.m. to 5 p.m. The Arts Festival takes place near the State Game Lodge.

There is no cost to attend the Buffalo Roundup or Arts Festival. A South Dakota state park entrance license is required to enter the park on Saturday and Sunday. A park entrance license is not required on the Friday of the Buffalo Roundup.

To learn more about the roundup and arts festival or to request a brochure, contact Custer State Park at 605-255-4515 or e-mail CusterStatePark@state.sd.us. More information can also be found online at www.custerstatepark.com.

CELEBRATE FALL AT NEWTON HILLS STATE PARK'S 15TH ANNUAL CELEBRATION

CANTON, S.D. – Pumpkin catapulting, carving and seed guessing are just a few of the activities for visitors to Newton Hills State Park for the 15th Annual FestiFall on Saturday, Oct. 4.

The popular FestiFall event, scheduled for 1-5 p.m. CDT, is attended annually by people of all ages. This year features many family activities, including arts and crafts with over 30 vendors, kids' games and music.

As in past years, the pumpkin will take center stage with pumpkin catapulting, pumpkin carving demonstrations and decorated pumpkin contests. Visitors are encouraged to bring their own decorated or carved pumpkins for judging.

There is no cost to participate in any of the events; however a park entrance license is required. For additional info, please contact Newton Hills State Park at 605-987-2263 or NewtonHills@state.sd.us.

SOUTH DAKOTA HUNTSAFE INSTRUCTORS RECOGNIZED

Pierre, S.D. -Several award winners will be recognized by the South Dakota Game, Fish and Parks (GFP) for their commitment, support and leadership in educating today's youth on the development and awareness of safe and honorable hunting practices.

Bill Weber, a volunteer HuntSAFE instructor from Dell Rapids, was selected as the 2013 HuntSAFE Instructor of the Year. Jessica Jensen and Julie Luebke, who team-teach in the Sioux Falls area, were selected as the 2013 Instructor Team of the Year and are the first ever all female team to be recognized.

In addition, regional HuntSAFE instructors and instructor teams were also nominated by GFP conservation officers and volunteer instructors.

2013 Regional Individual Winners:

Steve Abraham of Rapid City;
Mike McKernan of Murdo; and
Jay Osterloh of Hecla.

2013 Regional Team Winners:

Randy Vallery, Fred Lamphere, Ed Culver and Fred Wells of Nisland;
Karen Olson, Tom Lee, Kevin Hipple and Brian Lee of Pierre; and
Wayne Heilman, Rob McGraw, John Pollock, Keith Zobel, Dave Warkenthien and Andy Wookey of Clark.

Two new awards provide an additional opportunity for volunteers and conservation officers to be recognized.

Leo Gaspar Extraordinary Contribution Award

Ron Kolbeck, from Salem, won the Leo Gaspar Extraordinary Contribution Award which recognizes his contributions made to HuntSAFE during 2013. This award is named for a volunteer instructor who contributed over 50 years of service to the HuntSAFE program.

2013 HuntSAFE Conservation Officer of the Year

Dean Shultz, a conservation officer from Sisseton, won the 2013 HuntSAFE Conservation Officer of the Year which recognizes his support to the HuntSAFE program and local community.

"These award recipients are just a few of the instructors and instructor teams who consistently put forward a quality learning experience and all share a passion for hunting and its future in South Dakota," concluded Jason Kool, GFP HuntSAFE program coordinator. "We are grateful for the commitment and dedication each and every instructor gives to the HuntSAFE program every year."

2014 DEER HUNTING SEASONS FINALIZED

PIERRE, S.D. - The South Dakota Game, Fish and Parks (GFP) Commission finalized all 2014 deer hunting seasons at their June meeting in Yankton. The most notable change from last year will be the reduction in the number of licenses and tags available to hunters.

The West River firearm season will have a 17 percent reduction in licenses and a 56 percent reduction in tags, while the East River firearm season has a reduction of 22 percent in licenses and a 41 percent reduction in tags.

"These adjustments are intended to increase the deer population in areas where populations are below desirable management levels," said Tom Kirschenmann, chief administrator of wildlife.

Deer hunters participating in the archery, muzzleloading and youth deer seasons will see decreases in the number of available deer licenses and where antlerless deer tags are valid. For the archery and muzzloading season, hunters will be limited to one antlerless license for each season and those licenses will only be valid for whitetail antlerless deer and in certain areas within the state. Youth deer hunters will be limited to one any antlerless deer tag but will be able to hunt statewide.

In addition, deer hunters with an archery, muzzleloading or youth deer license will be required to obtain a free access permit to hunt on the Hill Ranch Game Production Area in Fall River County (Unit 27L), Custer National Forest lands in Harding County (Unit 35L) and the Little Moreau Game Production Area in Dewey County (Unit 24B). Permits are free of charge and unlimited.

2014 ANTELOPE AND EARLY FALL GOOSE HUNTING SEASONS FINALIZED

PIERRE, S.D. - The South Dakota Game, Fish and Parks (GFP) Commission finalized the antelope and early fall Canada goose seasons at their July meeting in Fort Pierre.

The firearms antelope season will run from Oct. 4-19 and have 2,705 licenses available for residents and 61 licenses available for nonresidents. Tripp and Lyman counties as well as the Fort Pierre National Grasslands unit are closed for both firearms and archery antelope hunting this year.

The early fall Canada goose season will run from Sept. 1-30. The Commission adopted modifications to the boundaries of Unit 1 to include the portion of Perkins County west of S.D. Highway 75 and south of S.D. Highway 20 and expanded Unit 2 by adding all of Custer, Fall River and Pennington counties.

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